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AUTHOR	Calhoun, Olivia H.
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ABSTRACT

A curriculum guide for grade 7, the document is devoted to the occupational cluster "Construction and Environment." It is divided into four units: urban renewal and development, urban and suburban construction and planning, megalopolis, and demography. Each unit is introduced by a statement of the topic, the unit's purpose, main ideas, quests, and a list of career opportunities (positions) available in that area. Next, the areas of language arts, mathematics, science, social studies, home economics, industrial arts, music, and physical education (when applicable) are subdivided into purpose, objectives, activities, materials, and notes with a statement relating these categories to the unit topic. The document is one of ten curriculum guides at the seventh and eighth grade levels presenting a career education emphasis. The teacher's manual for the series is available as CE 001 041. The other guides are: consumer and homemaking (CE 001 042); communications and media (CE 001 043); fine arts and humanities (CE 001 044); agri-business, natural resources, marine science (CE 001 046); public service occupations (CE 001 047); health occupations (CE 001 048); manufacturing, marketing and distribution, business and office occupations (CE 001 049); transportation (CE 001 050); and hospitality, recreation and personal service occupations (CE 001 051). (AG)

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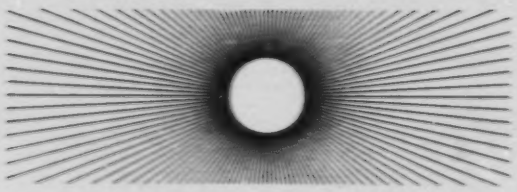
GRADE 7: CLUSTER IV
Construction & Environment

CONSTRUCTION AND ENVIRONMENT



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Presidential Building
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Washington, D.C. 20004

CAREER DEVELOPMENT EXEMPLARY PROJECT

BEST COPY AVAILABLE

An Interdisciplinary Course of Study for Grades Seven and Eight

Public Schools of the District of Columbia
Hugh J. Scott, Superintendent
James T. Guines, Associate Superintendent
for Instructional Services
Paul E. Cawein, State Director
for Vocational Education

Inquiries:

Mrs. Bessie D. Etheridge, Director
Career Development Exemplary Project (K-12)
Carver School
45th and Lee Streets, N.E.
Washington, D. C. 20019

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Curriculum Guides Prepared by

THE METROPOLITAN EDUCATIONAL COUNCIL FOR STAFF DEVELOPMENT

Curriculum Writer/Editor: Olivia H. Calhoun
Executive Director: Elaine C. Malmed

MEMBER INSTITUTIONS

American University, Department of Education
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A C K N O W L E D G E M E N T S

The Career Development Curriculum Guide was developed cooperatively by the following persons:

Olivia H. Calhoun. . . . . .Curriculum Writer
Joyce C. Page. . . . . Assistant Curriculum Writer
George Galloway. . . . . Principal, Evans Junior High School
Marguerite J. Pettigrew. . . . . Principal, Browne Junior High School
Ellen F. Datcher. . . . . .Assistant Director for Junior High Schools

CONSULTANTS

Donald H. Bullock, Ph.D.....Technical Writer.....Catholic University
Effie B. Crockett.....Home Economics.....Howard University
Rose Ann W. Elliott.....Art.....Browne Junior High School
Barbara Gregory.....Home Economics.....Federal City College
Louise C. Iannone.....Guidance.....The American University
Peter J. McCarthy.....Music.....Trinity College
Edna W. McClellan.....Social Studies.....University of Maryland
Martha Mead.....Business Education.....University of Maryland
Mary C. Rodgers, Ph.D.....Language Arts.....D. C. Teacher's College
Laura Smith.....Instructional Specialist.....Federal City College
Howard S. White.....Science.....McKinley High School
Lynwood F. Williamson....Industrial Arts....Browne Junior High School
Walter M. Young.....Mathematics.....Federal City College

TEACHERS

BROWNE

Annie U. Beard
Elizabeth S. Childs
Rose Ann W. Elliott
Zelmar S. Gordon
Nancy I. Harris
Lillian H. Jones
Roger B. Kyles
Nell M. LaBeach
David A. Lyons
Donald R. Moore
Evangeline S. Moore
Elnora Oxendine
Joseph M. Stills
Lynwood F. Williamson

EVANS

David J. Briles
Izzetta C. Callahan
Geraldine Cooke
Faye M. Dixon
Margaret J. Fenner
Modestine Gaynor
Edna V. Holliday
Jewyll Holliday
Marilyn Levitt
Harold B. Plummer
Harriet L. Richardson
James W. Vaughn

GRADE 7

CAREER CLUSTER MODULE

IV

CONSTRUCTION AND ENVIRONMENT

UNITS/TOPICS

1. Urban Renewal and Development
2. Urban and Suburban Construction and Planning
3. Megalopolis
4. Demography

Numbering System

7 = Grade Level
IV = Cluster Number
327 = Page Number in Total Series

CAREER DEVELOPMENT CURRICULUM GUIDE: GRADE 7

CLUSTER/MODULE: CONSTRUCTION AND ENVIRONMENT

PURPOSE: To make the students aware of the constructional and environmental effects upon their everyday life.

SYNOPSIS: This cluster will help the children to understand that man can control his environment. Millions of people are crowded together in large cities today which are faced with two major problems: (1) social, and (2) environmental. Both of these involve poverty, crime, drug abuse, racial tension, and discrimination. As people become more numerous and cities more complex, more and more jobs are open to people interested in planning, construction, and reconstruction projects; they should feel that they can have a small but important part in controlling their environment, and they should explore possible careers in construction and environment through the following chosen topics: Renewal and Development, Urban and Suburban Planning and Construction, the Megalopolis Concept, and the Demography Concept.

HIGH IMPACT ACTIVITIES:

1. Visit and tour on foot an urban renewal area closest to the school.
2. Rap session with representative from the Urban Renewal Office.
3. Visit to 7th Street, N.W. to see the before- and after-effect of urban renewal.
4. See the film: "Cities and What's Happening".
5. Visit the District Building and observe city planning in action.
6. Have a representative from the subway project bring in and explain a diagram of the subway layout in D.C. Students will identify the closest access point to their area.
7. Invite a merchant whose business is being affected by urban renewal to speak to the class.
8. Tour some of the current construction sites of the subway and highways.
9. Visit the Census Bureau.
10. Representative from the State Department to discuss emigration.

HIGH IMPACT ACTIVITIES -- CONTINUED

11. Representative from the Welfare Department to discuss migration.
12. Representative from an insurance company to give information on mortality rates.
13. Representative from Agriculture Department to discuss demography in rural areas.
14. Representative from Bureau of Vital Statistics in Washington, D.C.

COMMON RESOURCES:

1. U.S. Census Bureau
2. District Building
3. Urban Renewal Office
4. Agriculture Department
5. Bureau of Vital Statistics
6. Welfare Department
7. Department of Building and Grounds (D.C. Schools)
8. Metropolitan Area Transit Company
9. D.C. Public School Film Library
10. Housing and Urban Development
11. U.S. Department of State
12. Department of Health, Education, and Welfare
13. D.C. Zoning Commission
14. Public Library film collection

TECHNICAL TERMS:

demography, megalopolis, vital statistics, zoning permit, environment, vandalism, technology, migration, emigration, slum, ghetto, subway, city, town, hamlet, society, municipal, urban, rural, renewal, construction, and community.

GRADE 7

CAREER CLUSTER MODULE

IV

CONSTRUCTION AND ENVIRONMENT

Unit/Topic 1 - Urban Renewal and Development

Topic: Urban Renewal and Development

Purpose: To acquaint the student with the necessity for urban renewal and development and the impact such development can have on their lives.

a. By making slum areas take on a "new look."
b. By eliminating blighted sections of a city by revamping whole areas.
c. By providing parks and playgrounds.

To develop a sense of responsibility toward construction projects in an urban renewal area (i.e., curbing of thefts, vandalism, etc.)

To provide a general knowledge of the careers related to urban renewal and development.

Main Ideas:

1. Students should know that urban renewal is a long-range effort to achieve better communities through planned development of deteriorated areas and to eliminate the factors that create slums. As such, it touches the lives of practically every citizen in the District.

2. The riots of 1968 left many blighted areas in the city. Urban renewal has erased many of these "sore" spots by replacing them with parks, playgrounds, and modern buildings.

3. Urban renewal is for the benefit of all and each citizen has a responsibility to discourage theft in and vandalism of urban renewal projects.

Individual and Small Group Quests:

1. Research and report on the source of money for urban renewal projects.

2. Make a list of some of the areas that are headed toward urban redevelopment.

3. Find and list some laws that govern the urban redevelopment programs.

Career Opportunities:

1. Unskilled

construction laborer
helper
hod carrier
rodman

2. Semiskilled

asphalt spreader
building trade apprentice
machine mover
operating engineer (crane, shovel, pile driver, roller and tractor)
real estate salesman
salesman
truck driver

3. Skilled

architectural draftsman
carpenter
cement mason
city (community) planner
construction electrician
estimator
general construction foreman
general contractor
general field superintendent
mortgage loan agent
painter and decorator
special-trade contractor
surveyor

4. Professional

architect
chief highway engineer
chief traffic engineer
city manager
civil engineer
councilman
highway design engineer
landscape architect
mayor
regional analyst
urban geographer
urbanologist

LANGUAGE ARTS

Purposes:

To understand the problems of a city and the kinds of planning needed for the survival of cities.

To see the irony in man's capacity to build and destroy at the same time.

To believe that urban development can take place without excessive destruction.

To appreciate the differences between a city that is haphazardly developed and one that carefully considers basic human needs.

To develop improved literacy skills while working with data on urban renewal and development.

To understand the social uses of irony and satire.

To explore jobs related to urban renewal.

Objectives:

Upon completion of work in this unit, the student should be able to:

1. Write and give five minute skits on selected problems of a city.

2. Explain the meaning of irony and satire to the class and give instances of when men's actions are ironical.

3. Read selections from "Employment Outlook", and write a personal essay about urban renewal as a creative activity for all persons involved in it.

4. Point out the differences between a planned city and a nonplanned one.

5. Write summaries of written and visual materials in this unit in the time prescribed for the class.

6. Draw a cartoon with a cartoon blurb or write a joke that shows an understanding of how irony and satire can be used to correct social evils.

7. List 12 jobs related to this unit.

Activities: To accomplish these objectives, the student may engage in activities such as:

1. See films to develop concepts and extend information about urban renewal and development.

   a. "Urbanissimo" (6) McGraw Hill. A humorous comment on modern urbanization.
   b. "Bulldozed America" (25) Carousel Film. Brings out negative aspects of urban construction.
   c. "The Green City" (23) Stuart Finley. Shows how development can take place without excessive destruction.
   d. "One Dimension, Two Dimension" (15) Modern Picture Services. The many-sided problems found in cities; kinds of planning needed for survival of cities.
   e. "The City" (33) University of Iowa. Contrasts planned and unplanned cities.

   Tie-in with Social Studies.

2. Read "Employment Outlook" reprints on landscape architects, industrial designers and urban planners to gather information for writing personal essays.

3. Write personal essays about urban renewal as a creative enterprise for all persons involved in it.

4. Participate in a series of teacher-planned lessons on meaning and use of irony and satire as literary techniques.

5. Draw cartoons (tie-in with Art) or write jokes whose targets are the evils of cities that were not carefully planned.

6. Work in groups to write and present five minute skits to the class on typical city problems that might be solved by creative urban renewal. Tie-in with Language Arts, Drama.

7. Take teacher-made composition tests related to films and readings for this unit: enforce standard time. These tests should include matching the following words with their definitions:

Activities -- Continued

a. contrastive study
b. depersonalization
c. humor
d. hyperbole
e. infestation
f. malnutrition
g. non-involvement
h. pesticides
i. poverty-level
j. traffic mazes
k. urbanization

8. In a test situation, list jobs related to urban development.

Materials:

1. Films related to Activity 1 above.
2. Reprints for Activity 2 above.
3. Teacher handout explaining how irony and satire as literary devices can help to cure social evils.
4. Manila paper and magic markers (multi-colored) for cartoons or jokes.
5. Ditto sheets (teacher-made composition tests on film summaries, reading summaries and vocabulary for this unit).

Notes:

Tie-Ins with Career-Related Skills

Improved literary skills, self-confidence through speaking in audience situations, knowledge of jobs related to urban development, improved socialization through group work, balanced perception regarding urban problems, and appreciation for creative behavior in resolving serious problems.

Career Development Curriculum Guide: Grade 7
Construction and Environment
Urban Renewal and Development

MATHEMATICS

Purpose: To help the students to recognize the social applications of mathematics.

Objectives: Upon completion of work in this unit, the student should be able to:

1. Identify and use appropriate formulas for perimeter and area to solve meaningful problems.

2. Find the missing element in all three types of percentage problems.

3. Identify, illustrate and cite examples of plane and solid geometric figures such as triangles, rectangles, squares, rectangular prisms, cubes, pyramids, etc.

Activities: To accomplish these objectives the student may engage in activities such as:

1. Enclose the urban renewal areas on a map of D.C. and calculate the area of each enclosure. The students are also to calculate the total area for urban renewal.

2. Calculate the percent of money allocated for each urban renewal project. (The teacher is to find out the total amount of money allocated for each urban renewal project.)

3. Calculate the percent of space allocated to playgrounds, business, apartment buildings, homes, hospitals, schools, churches, highways, etc. Tie-in with Social Studies.

4. Identify the different one, two and three dimensional geometric figures and measurements used in designing urban renewal and total the number of times each geometric figure is used. These should include:

cubic foot	line segment
cubic inch	point
cubic yard	triangular prism
line	volume

as well as the terms in Objective 3 above.

Career Development Curriculum Guide: Grade 7
Construction and Environment
Urban Renewal and Development, MATHEMATICS

Materials:

Information on Urban Renewal Projects from the Urban Renewal Office.

Career Development Curriculum Guide: Grade 7
Construction and Environment
Urban Renewal and Development (City Water Supply and Plumbing)

SCIENCE

Purpose:

To show pupils the vital role water plays in the life of a neighborhood.

To give them experiences in working with water-use and control devices like faucets, toilet tanks, hot water heaters, radiators and washing machines.

To help them understand how a humidifier and dehumidifier work.

Objectives:

Upon completion of work in this unit, the student should be able to:

1. Assemble and disassemble a faucet and replace its washer.
2. Replace parts in a toilet tank.
3. Know how to control the flow of water into his own residence.
4. Be able to understand how a hot water heater and a washing machine use water and the proper maintenance and care of these devices.
5. Understand how a hot water radiator works.
6. Understand how a humidifier and dehumidifier work.

Activities:

To accomplish these objectives, the student may engage in activities such as:

1. Participate in a teacher-led discussion on the use of water in neighborhood and in a residence with a demonstration of a siphon from one container of water to another. Use a little congo red or methylene blue to give the water color. Ask appropriate questions about how it works.
2. Relate this siphoning principle to how water gets from the Georgetown Reservoir, down under Rock Creek Park and back up to McMillan Reservoir. Help pupils recall the source of water for D.C. from the Potomac River.

Activities -- Continued

3. Quest: Have pupil(s) contact the U.S. Corps of Engineers at McMillan Reservoir for a booklet of the city water supply; prepare maps and diagrams of its route and processing; and present this information in a report with visual material to the class. Tie-in with Language Arts, Mathematics, Social Studies.

4. Siphon water from one container to another. Use old newspapers as effective blotters. Have students answer the key questions: What must be the position of the reservoir water in relation to the effluent catch basin? Can the siphon be stopped and started again? How? What makes a siphon work? Can a siphon still work although it is put in a U (you) shape?

5. After the learning experiences in Activity 4, discuss the answers with the class. Develop the concept of air pressure; creating a partial vacuum; and the force of gravity all of which are operative in the process of siphoning. Point out that gravity flow from the reservoir located on high ground supplies most areas of the city with good water pressure. Tie-in with Mathematics: pressure as pounds per square inch.

6. Discuss the ways in which water flow is controlled in the home. Where are the water shut-off faucets located in your home? How is a faucet constructed? How much force does the water have? What mechanical advantage do the screw threads give? How does the faucet washer function? When worn out how is it replaced? List the questions on the chalk board and distribute old faucets of various designs to teams of pupils. Allow them time to take apart the faucet, analyze the function of each part, and answer the questions as a team.

7. For the answer to the question of the force of water, set up the demonstration of the gallon tin can or half gallon milk carton with three holes punched in the side, each at a different level. Show that pressure depends on the height of water above the outlet hole. The mechanical advantage of the faucet is the radius of the handle divided by the radium of the shaft; plus the pitch of the threads

Activities -- Continued

divided into the circumference of the threads. Tie-in with Mathematics.

8. Quest: Find out the height of the largest hill in the neighborhood. Compare its height with that of the reservoir supplying that neighborhood. What is the height of the tallest building on that hill? Does the top floor there have enough water pressure? Tie-in with Mathematics.

9. To help pupils gain experience with other household appliances establish learning stations around the room with these pieces of equipment at each:
   a. A discarded toilet tank with its parts intact.
   b. A screw driver and adjustable wrench for tools.
   c. Large diagram of a hot water heater plus any of the hardware from one that can be gathered; a gas burner and heat control valve.
   d. Large diagram of an automatic washing machine plus hardware.
   e. A discarded dehumidifier.
   f. A diagram or hardware of a hot air furnace humidifier plus hardware and/or a room humidifier.
   g. Diagram of an iron hot water radiator and how its heat sets up convection currents in the room.

   Have a team of pupils work at each learning station to examine all diagrams and parts carefully. Prepare a report to give to the class on that particular appliance. Allow study time during which any class member interested in a particular device can visit and explore that learning station. Tie-in with Language Arts.

10. Quest: Contact the D.C. Department of Sanitation at Blue Plains and find out how waste water that goes down the drain is processed before re-entering the Potomac River. Report to the class. Tie-in with Language Arts.

11. Quest: Report on water usage by the District of Columbia as to amounts, gallons per individual user prognosis for 1980, and tips to the user,

Activities -- Continued

about good water usage and conservation. Tie-in with Social Studies.

12. Field trip: Arrange a trip with the school custodian or engineer for a select representative group of pupils to visit the boiler room and see the devices for water control and usage in the school. Report back to their respective classes.

Materials:

1. Books:
   a. Boy Scouts of America. Plumbing. North Brunswick, N.J. 1965.
   b. Graham, Frank D. Audels Plumbers and Steam Fitters Guide #3. Indianapolis, Howard W. Sams and Co. 1966.
   c. Daniels, George. Home Guide to Plumbing, Heating and Air Conditioning, N.Y. Popular Science Publishing Co. Harper and Row. 1967.
2. Films:
   Film from D.C. Public Library
   a. "Teamwork on the Potomac". Stuart Finley. 1964, 29 min. color jh-a. Shows water management from start to finish.

   Films from Twining Media Center (D.C. Schools)
   a. #1867 "Water for the City". B, 11 min., P-I.
   b. #567 "Water Cycle, The". B 11 min., I-S.
3. Assorted screwdrivers, wrenches and pliers.
4. Discarded faucets. See a large plumbing company in the neighborhood.
5. Extra rubber tubing for siphoning.
6. Discarded water fixtures: toilet tank, dehumidifier, humidifier, and hot water heater hardware.

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Construction and Environment
Urban Renewal and Development

SOCIAL STUDIES

Purpose: To provide the students with knowledge concerning positive and negative aspects of urban renewal.

Objectives: Upon completion of work in this unit, the student should be able to:

1. Define urban renewal.
2. State some of the conditions that made urban renewal necessary.
3. State some of the job opportunities made possible by urban renewal development.

Activities: To accomplish these objectives, the student may engage in activities such as:

1. Review and discuss how the Industrial Revolution led to the transition of people from rural to urban centers, the problems which resulted, the rise of the suburb and the concept of inner city.
2. Quest: Bring pictures to class showing the character of a slum. Such conditions as crowded housing, poor maintenance of buildings, unsanitary conditions, absentee landlords, crime, weak family life, and discrimination and lack of low-cost housing can be shown and discussed. Tie-in with Art; collage of city problems.
3. Report on the role of the courts in correcting evils of urbanization, including enforcement of building codes and safety standards and correcting substandard buildings.
4. Discuss how the Washington area governments are participating in regional planning and development.
5. Quest: Take pictures of urban renewal developments in the Washington area and construct a bulletin board display. Tie-in with Art.
6. Divide into groups and discuss the reasons for urban renewal.

Activities -- Continued

7. Discuss the negative aspects of urban renewal.

8. Quest: Report on the federal road construction projects and their cost and how they are financed. Tie-in with Language Arts.

9. List and discuss job opportunities related to urban renewal projects.

10. Report on agencies in the D.C. area that are involved in urban renewal.

11. Quest: List and discuss what they can do to improve conditions in their own communities.

12. Quest: Research and report on what happened to such areas as U Street, 14th Street, Southwest D.C., etc.

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Construction and Environment
Urban Renewal and Development

BUSINESS EDUCATION

Purpose: To give students an opportunity to identify the construction business as it relates to urban renewal.

To give students an opportunity to participate in a renewal and/or development project as an independent contractor.

Objectives: Upon completion of work in this unit, the student should be able to:

1. Identify the elements of a contract from a given problem.

2. Identify the activities involved in completing an urban renewal project from a "before" and "after" picture and/or descriptive statement of a particular area.

Activities: To accomplish these objectives, the student may engage in activities such as:

1. Field trip: Visit 7th St. (N.W.) to see the before and after effects of urban renewal; have students discuss what they observed.

2. Participate in a teacher-led discussion on the role of the independent contractor and how he goes about his task of "contracting". Include the terms: offer, acceptance, mutual assent, performance, consideration.

3. Quest: Have students choose a "sore pocket" at school or at home and write up the activities they think would be involved in improving the area. These individual reports could then become the basis for various independent contractors elected from the class and their appointed assistants to make competing bids with other class contractors to do the improvement job. Tie-in with Home Economics.

4. Participate in a teacher-led discussion on the elements of a contract. Make distinction between implied and formal contracts.

Activities -- Continued

5. Draw up a specific contract in writing to carry out a specific home improvement project. Tie-in with Language Arts.

6. If feasible, have various student groups actually execute a contract for a school or home improvement project. Tie-in with Industrial Arts, Science.

7. Quest: Draw posters on the various "before" and "after" student improvement projects. Tie-in with Art.

8. Quest: Interview a private contractor to whom an urban renewal project was assigned and tell the class the activities involved in completing such a project. Tie-in with Language Arts.

9. Role play situations whereby independent contractors entered into enforceable, void and avoidable types of contracts. (These should be based on Activity 5.)

10. Discuss what the construction business encompasses - personal qualifications, etc. Have students state in writing their own personal reactions to this sort of work.

Materials:

1. Books:
   a. Fisk, McKee and Snapp, James. Applied Business Law. New Rochelle, N.Y. South-Western Publishing Co. 9th ed. Unit 2.
2. Pamphlets:
   a. "Should You Go into the Construction Business?" New York Life Insurance Co., Career Information Service, Box 51, Madison Square Station, New York, New York 10010.
   b. "Heavy Equipment Operation". 299 Northwest Schools, 1221 N.W. 21st Ave., Portland, Oregon 97209.

Note:

Tie-In with Specific Career-Related Skill

Skill in interpreting contracts is important in occupations such as: legal secretaries, independent contractors, architects, engineers, structural designers, and specialists of almost every sort.

Career Development Curriculum Guide: Grade 7
Construction and Environment
Urban Renewal and Development

INDUSTRIAL ARTS

Purpose: To make students aware of urban renewal taking place in Washington and to show the available job opportunities connected with urban renewal and development.

Objectives: Upon completion of work in this unit, the student should be able to:

1. Define urban renewal and development.
2. Identify several urban renewal projects in the District of Columbia.
3. Prepare a job analysis of the many jobs made available through urban renewal and development.
4. Construct a model city showing areas of urban renewal and development.

Activities: To accomplish these objectives, the student may engage in activities such as:

1. Quest: Write a research paper on one aspect of urban renewal and development. Tie-in with Language Arts.
2. Field Trips: Visit urban renewal projects in the District of Columbia (Model Cities, "MICCO", 14th Street and Cardozo Area, Southwest, Waterfront and "Shaw," L'Enfant Plaza. Turn in a scrapbook on the various tours). Tie-in with Social Studies.
3. List jobs (careers) related to urban renewal and development.
4. Quest: Have students build a small scale model of the District of Columbia showing some of the urban renewal projects: in planning states, destruction (clearing of sites), construction. Tie-in with Mathematics, measurement and ratios.
5. Quest/Field trip: Have interested students visit Redevelopment Land Agency and interview staff. Tie-in with Social Studies.

Materials:

1. Modeling clay
2. Wood

Topic: Urban and Suburban Construction and Planning

Purpose: To help the student become aware of the lengthy planning that is required to construct a building in D.C. or in a nearby suburban area.

Main Ideas:

1. To acquaint the student with the activities involved in planning and constructing buildings in an urban and suburban area.
2. To give the student a general knowledge of the careers related to urban and suburban construction and planning.
3. To give the student a general knowledge of zoning and a realization of why some sections of a city are classified as residential, commercial, etc.
4. To make the student aware of the safety features that must be built into planning for an urban area.

Individual and Small Group Quests:

1. Interview the manager of a large shopping center. Write a report on the large scale planning that took place in its development.
2. After research, write a report on the feasibility of building a home on the D.C.-Maryland line.
3. Find out and report on how climate influences construction.

Career Opportunities:

1. Unskilled

bulk loader
construction laborer helper
hod carrier
rodman
timekeeper

2. Semiskilled

asbestos worker
asphalt spreader
building trade apprectice
cement finisher
consiruction inspector

Career Opportunities -- Continued

2.
- glazier
- ironworker
- lather
- millwright
- operating engineer
- pavement marker and sign erector
- plasterer
- safety inspector
- sheet metal worker
- truck driver

3. Skilled

- architectural draftsman
- boilermaker
- brick and stone mason
- carpenter
- construction foreman
- construction punch-out man
- electrician
- elevator constructor
- estimator
- floor coverer
- general contractor
- general field superintendent
- highway technician
- marble setter
- painter and decorator
- plumber
- terrazzo worker
- urban planner
- well driller

4. Professional

- architect
- chief construction engineer
- city manager
- civil engineer
- landscape architect
- mathematician
- route location engineer
- urbanologist

GRADE 7

CAREER CLUSTER MODULE

IV

CONSTRUCTION AND ENVIRONMENT

Unit/Topic 2 - Urban and Suburban Construction and Planning

Career Development Curriculum Guide: Grade 7
Construction and Environment
Urban and Suburban Construction and Planning

LANGUAGE ARTS

Purposes:

To reinforce the idea that cities which serve man's basic needs are pre-planned.

To realize that population shifts can be controlled by modern methods of urban planning.

To appreciate the harm man can do to the environment by neglecting to plan for urban development.

To improve overall language arts skills by handling materials for this unit.

To increase knowledge about careers related to construction and planning.

Objectives:

Upon completion of work in this unit, the student should be able to:

1. Explain why pre-planned cities can better serve man's basic needs.
2. Argue that population shifts can be controlled by modern methods of urban construction and planning.
3. Speak against the way some land developers have commercialized property and ruined the environment.
4. Show improved skill in reading, writing, speaking, and listening by passing appropriate tests of efficiency.
5. Make descriptive lists of careers related to the content of this unit.

Activities:

To accomplish these objectives, the student may engage in activities such as:

1. See films "Tomorrow Begins Today" and "The Growth of Cities" and give symposium reports (3 minutes per student) on the values of pre-planning in urban development. Tie-in with Social Studies.
2. See film "Cities, Why They Grow" and participate in class debate; argue for or against idea that population shifts can be manipulated by modern methods of city planning and construction. Tie-in with Social Studies.

Activities -- Continued

3. See film "Boomsville" and write newspaper editorials and share with the class. Subject: land developers are ruining the countryside. Tie-in with Social Studies.

4. Take multicomponent language arts tests to measure growth in literary skills.

5. Make a decorative wall chart listing careers in urban construction and planning. (Pictures of workers from newspapers and magazines can be used for illustrations along with poster paint and magic markers.) Tie-in with Art.

6. See films to gather information for activities as indicated:

   a. "Tomorrow Begins Today" (25 min.) Milner Fenwick Company. Need to preplan orderly development of highways, commercial, residential, and recreational areas for a city complex.
   b. "Boomsville" (11 min.) Learning Corp. of Am. What injury commercial land developers can do to the environment.
   c. "Cities, Why They Grow" (11 min.) Coronet Factors affecting the concentration of populations.
   d. "The Growth of Cities" (11 min.) Encyclopedia Britannica Films. How urban development can be manipulated by modern methods of urban construction and planning.

7. Take a test which requires matching the following words with their definitions, and research words which they could not define.

commercial development	personal focus
environmentalist	population concentration
exploiter	population explosion
human needs	residential planning

Materials:

1. Stop-watch (Teacher needs to monitor symposium reports.)
2. Teacher-made chart listing the chief characteristics of an editorial.

Materials -- Continued

3. Teacher-made tests in the four language arts to measure growth in literary skills.
4. Double size newsprint or poster paper for illustrated student charts on careers related to this unit.
5. Old magazines and newspapers as a resource for Activity 4.
6. Films for Activity 6.
7. Magic markers, poster paint, paste, and scissors for Activity 4.

Notes

Tie-Ins with Career-Related Skills

Strengthened self-image through personal appearances before audiences, increased literary skills, knowledge of occupations in urban construction and planning, and ability to consider pros and cons of an issue.

MATHEMATICS

Purpose: To show the students the role of mathematics in the construction field.

Objectives: Upon completion of work in this unit, the student should be able to:

1. Perform the four basic operations using whole numbers, common fractions and decimal fractions.
2. Calculate areas and volumes of rectangles and rectangular solids respectively.
3. Write in verbal form a sentence given in algebraic form and conversely.
4. To determine if a number sentence is a true, false, or an open sentence.
5. Find the missing element in all three types of percentage problems.
6. Convert simple common units of measure from one unit to another within the same system: linear, liquid, weight, dry, time.
7. Determine the mean, median, and mode of a given set of data.

Activities: To accomplish these objectives, the student may engage in activities such as:

1. Determine the lowest bid in each case, after the mathematics teacher has presented several cases of three bids on the same contract (1) one with a lump-sum cost; (2) one with a fixed fee above costs; and (3) one with a percent of earnings above costs, given the cost of construction in every case (by the teacher). The teacher is to introduce equation writing by having the students generalize the computations.
2. Calculate the weight and cost of each substance to fill cornerstones of varying sizes such as one

Activities -- Continued

cubic foot, one and one-half cubic feet after:

a. the science teacher has acquainted the students with building stone substances such as granite, limestone, sandstone, marble, and slate and how to determine their weights.

b. the mathematics teacher determines the cost of each substance.

3. Quest: Make a miniature urban renewal community and a miniature suburban community including homes, churches, schools, stores, hospitals, etc. The students are also to determine how much space each community devotes to homes, schools, churches, hospitals, etc. and are to calculate the percent of space used by each.

4. Establish the cost of each home and the rent for each apartment in each community in (3) above. Using the rule of thumb that 2 1/2 times one's gross income is the maximum amount he should pay for a house and 1/4 of his gross income is the maximum amount that he should pay for rent, the students are to calculate the average and median income for each community.

Materials:

1. Information on cost of building contracts, costs of constructing buildings and homes, cost of building stores.
2. Books:
   a. "Building Construction." The World Book Encyclopedia, 1972. pp. 2, 573-576.

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SCIENCE

Purpose: To acquaint pupils with how a house is wired so that they may gain greater experience with electricity and its safe usage.

Note: It may be possible to cooperate with the Industrial Arts and the Home Economics teachers in building a cutaway view model house and furnish it; and then wire it for lights in the science class.

Objectives: Upon completion of work in this unit, the student should be able to:

1. Explain the wiring system in a house.
2. Wire a model house.
3. Explain the function of a transformer.
4. Make and explain the function of a fuse.
5. Explain a circuit breaker.
6. Wire electric sockets in parallel or in series.

Activities: To accomplish these objectives, the student may engage in activities such as:

1. Discuss with pupils the work-saving devices that are put into new housing developments. List them. How is the power supplied for these devices? List the answers.
2. Quest: Select electricity as a power source for closer study - include the terms ampere, OHM, volts, resistance, electromotive force.
3. Discuss with pupils how electricity gets to a house, where electricity originates, and how much force it has. Review the forms of energy. Which wires bring electricity into a house: How can they be distinguished from telephone wires?

Activities -- Continued

4. Demonstrate a bell transformer wired to the 110 V outlet and to an electric bell, thin aluminum foil strip, and switch. Notice the effective ring and the slight sparking at the contact screw of the armature when the switch is closed. Now bypass the transformer and wire the bell directly to the 110 V outlet. Notice the increased noise and action of the bell at the armature and the melted fuse. Close the switch only momentarily (a second) on this trial. What function does the transformer play in controlling electricity?

5. Quest: Have pupils investigate the principle of the transformer and report and demonstrate a homemade transformer to the class.

6. Parallel and Series Circuits:

   a. Have a team of pupils experiment with making a simple circuit by distributing light bulb sockets, bulbs, and tin strips and small wooden pieces with round-head screws from which to make switches. Equip each row of tables with two long lead wires from the bell transformer plugged into the 110 V source. Let pupils tap into it at their individual stations. Have pupils connect a socket and switch to the supply wires from the transformer and make the bulb light.
   b. Instruct them to pool their sockets so as to make two bulbs light in one circuit. Trace the path of the electricity through the wires. Now try three bulbs and sockets. Does it work? What wiring path did you use? How many bulbs and sockets can you make light from one supply from the transformer?
   c. Develop from their diagrams the idea of series and parallel circuits. Demonstrate the flow of current in a series circuit. Which would be better for wiring a house?

7. If the pupils have made model homes in shop, wire each one in parallel using little time strip switches

Activities -- Continued

in each room. This will require some careful planning on the part of the pupil so as not to get switches in series and darken the whole house when one is cut off.

8. Discuss the fuse box and its safety function. Demonstrate a fuse strip and a deliberate short circuit. Have pupils locate their own fuse box and master switch at home.

9. Quest: Make a model of a master switch and fuse box to show its electrical pathways to the class.

10. Go over electrical safety rules such as not overloading a circuit with too many plugs and appliances, not bypassing a fuse, repairing worn electric cords, cracked plugs, and so on. Have pupils copy the list and be able to cite examples of each "do" and "don't".

11. Diagram and explain the circuit breaker as another safety device instead of a fuse. Have pupils investigate and report on whether they have circuit breakers or fuses in their houses. What are the proper steps to take to reset a circuit breaker after it has been tripped by an overload or short circuit?

Materials:

1. 2 dozen 6 volt screw base lamp sockets
2. 2 dozen 6 volt bulbs
3. 2 to 4 doorbell transformers or 6 volt power supplies
4. 1 roll of bell wire or its equivalent
5. 2 dozen flat tin for switches
6. 2 dozen wood squares
7. 1 box of round-head screws
8. 1 doorbell
9. cardboard boxes and flat cardboard for making model homes
10. 1 pint of white glue

Materials -- Continued

11. Films:
    Twining Media Center Washington, D.C.
    a. #487 Series and Parallel Circuits B. 11 min. S.
    b. #1016 Electricity All About Us B 11 min. I
12. Books:
    a. Davis, Ira C. and Sharpe, Richard W. Science. N. Y. Henry Holt and Co. 1940. An old but good book.
    b. Morgan, Alfred P. The Boy Electrician. N.Y. Lothrop, Lee and Shepard Co. 1961.
    c. Thuber, Walter A., and Kilburn, Robert E. Exploring Physical Science. Boston. Allyn and Bacon, Inc. 1968, p. 242 ff.

Notes:

Tie-Ins with Other Subject Areas

Mathematics -- equation for Ohm's Law: I=E divided by R.
Social Studies -- the history of the development of electric lights and city power. (T.A. Edison)
Home Economics and Industrial Arts -- Model home design and construction.

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SOCIAL STUDIES

Purpose:

To make students aware of the problems that have beset the major cities of the United States and the world.

To identify the many social and economic problems which have made our metropolitan areas what they are today.

To make students aware of new concepts in city planning such as the model cities.

Objectives:

Upon completion of work in this unit, the student should be able to:

1. Describe some of the problems of our metropolitan areas today that were not envisioned by early planners.

2. Summarize the events that led to the planning and building of the town of Columbia, Md.

3. State how Columbia meets most of the needs of its citizens and why it may well be the pattern for cities of the future.

4. List at least six of the types of job opportunities which are related to the planning and construction of model cities like Columbia.

Activities:

To accomplish these objectives, the student may engage in activities such as:

1. Discuss and make a list of the problems faced by cities today. Find pictures or make sketches to illustrate them. Tie-in with Art.

2. Prepare a bulletin board display of problems of the cities today. Tie-in with Language Arts.

3. Quest: Form a committee to research and report on the unique problems of Washington, D.C. and what is being done to correct them. Tie-in with Language Arts.

Activities -- Continued

4. Quest: Prepare a report on Pierre L'Enfant and Benjamin Banneker to respond to the question: How did what they envisioned of Washington, D.C. fall short of what has actually happened? Tie-in with Language Arts.

5. Quest: Prepare a brief report on Reston or another model community in the United States. Tie-in with Language Arts.

6. Listen to a lecture (by teacher) on a profile of James Wilson Rouse, the founder/developer of Columbia, Maryland, and write a summary of "motivating ideas, events." Especially significant is his determined resistance to obstacles which confronted him in implementing his plans for a model city.

7. Group Quest: Construct a model, self-sustaining city. The group will research and report on such needs as:

   a. industry (jobs)
   b. recreation
   c. housing (include low-income)
   d. sanitation
   e. transportation
   f. commercial establishments which provide for consumer needs (dry cleaning, shoe repair, restaurants, gas stations, etc.)
   g. population distribution by level of income
   h. education
   i. low density vs. high density population
   j. open space/land use planning. Tie-in with Art, Language Arts, Mathematics.

8. Field Trips: Visit Reston and Columbia; compare and contrast such features as diversity of inhabitants' backgrounds, architecture, transportation, etc.

9. Resource Person: Invite a member of the planning committee for Columbia (Ask Mr. Rouse himself) to talk to the class on his problems and successes in creating Columbia.

Activities -- Continued

10. Individual and small group quests: Research the role of the Federal Government in financing city planning and development. List the agencies and their various functions.

11. Small Group Quest: Form a committee to research and report on various retirement villages such as Leisure World. Report findings to the class.

12. List and discuss some of the many job opportunities involved in planning and building a city.

13. Quest: Report on the importance of zoning in the planning and operation of a city.

14. Quest: Research and report on the Fort Lincoln Project in Washington D.C. or on the National Capital Planning Commission.

15. Divide the class into four teams to report on what is happening in the southeast, northeast, and southwest and northwest with respect to construction and planning.

Materials:

1. Clay, cardboard, plywood, tools, scissors
2. References:
   a. Breckenfield, Gurney. Columbia and the New Cities, New York: Van Rees Press. Library of Congress #79-134803.
   b. Bueher, Wendy. "New Designs for Megalopolis," Horizon, (Autumn, 1966).
   c. "New Town Answer to Urban Sprawl," U.S. News and World Report, (February 14, 1966).
   d. "Reston: First of the New Satellite Cities," Life, (December 24, 1965).
   e. Von Eckardt, Wolf. "New Town in Washington," Americas, (January 1965).
3. Free materials:
   a. District of Columbia Redevelopment Land Agency
   b. National Electrical Contractors Association 1220 18th St., NW, Washington, D.C.
   c. Painting and Decorating Contractors Association of America, 2625 West Peterson Avenue, Chicago, Illinois.

Materials -- Continued

d. National Electrical Controllers Association, 1220 18th Street, NW, Washington, D.C.
e. National Association of Plumbing Contractors, 1016 20th Street, NW, Washington, D.C.
f. AFL-CIO Building and Construction Trades Department, 815 16th Street, NW, Washington, D.C.

Notes:

Tie-Ins with Other Subject Areas

Language Arts -- have students write a paper describing their dream city. Major features can be illustrated with original sketches and/or pictures from newspapers and magazines. The oral presentations can be divided into categories such as education, transportation, employment, housing, etc.

Mathematics -- scale model for a town chart comparing housing costs in selected model towns; include apartments, townhouses, conventional homes, financing procedures for new town, repayment of loans, interest rates, mortgages.

BUSINESS EDUCATION

Purpose:

To give students an opportunity to participate in activities related to the construction or redesigning of an office practice classroom within a junior or senior high school.

To acquaint students with terminology related to real property and to carry out some of the clerical-secretarial tasks similar to an real estate executive's activities.

Objectives:

Upon completion of work in this unit, the student should be able to:

1. Define in writing certain technical terms that pertain to real estate including:

amortization	lease
easement	mortgage
fixtures	personal property
land contract	real property
layout	tenant

2. Select from various office layout designs the one most likely to lead to an efficient flow of work and cite reasons for selection.

3. Set up and arrange materials within an individual file for a rental unit.

Activities:

To accomplish these objectives, the student may engage in activities such as:

1. Resource Person: Listen to a representative from the school board planning office discuss the activities involved in planning and constructing their school. Have each student write a list of what he feels has been overlooked.

2. Brainstorm on the type of activities they feel an office practice class would be engaged in. Then have the class break into small groups to research the planning activities for constructing an office practice classroom. Student groups would be involved in some of the following:

Activities -- Continued

a. Looking through various office practice textbooks to determine the specific types of jobs and equipment they would need to plan the layout of their model classroom.
b. Examining office equipment and materials catalogues to make definite equipment and furniture selections, checking costs and safety plus wear factors.
c. Drawing templates and cutting pictures from magazines to place on a poster of the model classroom. Tie-in with Art.
d. Interviewing business teacher and/or visit high school office practice classrooms to obtain ideas for model classroom construction project.
e. Outlining the safety features to be observed in placing equipment and furniture, electrical outlets, etc., in model room.

3. Listen to a teacher-led class discussion on some of the following topics pertaining to real property:

   a. Legal terms used when the title to real estate is transferred.
   b. The differences between real and personal property.
   c. Factors involved in deciding whether to rent or buy.

4. Discuss the advantages of renting versus buying a house.

5. Make a chart comparing the monthly costs difference between renting and buying housing. Tie-in with Mathematics.

6. Make a check list of general and specific points to consider in helping you decide whether a particular housing facility will meet your requirements. (This same sort of activity could be done from a business standpoint -- renting or leasing office space, etc.)

Activities -- Continued

7. Acting as secretaries, students will keep a record of income and expenses that their employers incur by owning a small apartment building for investment property. Activities would include setting up an individual file folder for each rental unit where correspondence, the lease, bills for repairs, list of furniture provided, rental amount, etc., would be filed.

Materials:

1. Books:
   a. Hanna, J. Marshall, Popham, Estelle, and Beamer, Esther. Secretarial Procedures and Administration, 5th ed. South-Western Publishing Co., 1968. Chapter 23.
   b. Wilhelms, Fred, Heimerl, Ramon and Herbert Jelley. Consumer Economics. 3rd ed. Gregg Division McGraw-Hill Book Co., 1966. Unit 6, Housing.
2. Newspaper Article
   a. "Design for an Urban Setting" by Wolf von Eckardt. Eckardt. Section E 6, Saturday December 11, 1971. The Washington Post. A detailed description of Dunbar High School.
3. Miscellaneous
   a. Catalogues, office management textbooks, and magazines for pictures of office furniture and equipment and/or office layout designs.

Notes:

Tie-Ins with Specific Career-Related Skills

Skill in organizing and planning the layout of an office area is important in occupations such as: construction worker, office manager, architect, building contractor, and executive secretary.

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INDUSTRIAL ARTS

Purpose: To acquaint the students with experiences involved in urban and suburban planning and construction and related careers.

Objectives: Upon completion of work in this unit, the student should be able to:

1. Select, lay out and design a project (site), (mechanical drawing of a golf course, housing project, swimming pool, widening a street, a miniature city), landscaping.
2. Explain some of the zoning laws in the District of Columbia.
3. Identify some of the job opportunities related to urban and suburban planning and construction.
4. List some of the principal reasons why people leave the cities for suburbia.

Activities: To accomplish these objectives, the student may engage in activities such as:

1. Plan a miniature city, if this has not already been done in Social Studies. Tie-in with Art, Mathematics.
2. Build the city and indicate the proper permits necessary. Tie-in with Art, Mathematics.
3. Obtain information from the Zoning Commission concerning the kinds of construction allowed in different places in the city and discuss reasons.
4. Field Trip: Visit the District Building and observe city planning in action. Make a list of types of jobs involved in this.
5. Field Trip: Visit and interview subway construction personnel at one of the Metro system sites. Make a list of types of jobs connected with this endeavor.

Activities -- Continued

6. List some of the many career opportunities, including some of the conditions under which workers perform their duties, such as: physical working environment, economic rewards, collective bargaining, health and safety conditions.

7. Quest: Write a research paper on "Why People Leave the City for Suburbia." Tie-in with Language Arts.

8. Field Trip: Visit a construction site and talk with the construction superintendent, crane operators and truck drivers. Write an essay on impressions. Tie-in with Language Arts.

Materials:

1. Cardboard
2. Wood
3. Mechanical drawing equipment

Topic: Megalopolis

Purpose: To show the student how cities have begun to merge due to innovations in teachnology and transportation.

Main Ideas: Students need to know how cities will be merging more and more in the coming years. This merging will have a direct effect on their future employment opportunities. Some of the concepts that should be covered are: (1) the subway, (2) airlines, (3) road construction, and (4) effects of the megalopolis concept on the cities.

Although the megalopolis is a new concept at the present, it will enhance the employment opportunities of our students when they enter the world of work.

Individual and Small Group Quests:

1. Have the student plan his own miniature city and form a megalopolis with another city
2. Have the student extend D.C. Metro line beyond the present planned points.

Career Opportunities:

1. Unskilled

   chainman
   rodman

2. Semiskilled

   airline dispatch clerk
   assistant dispatcher
   instrumentman
   pavement marker and sign erector
   radio operator
   teletypist
   traffic clerk

Career Opportunities -- Continued

3. Skilled

air-route traffic controller
airline dispatcher
airline station agent
airport traffic controller
district right-of-way agent
flight service station specialist
highway draftsman
highway technician

4. Professional

chief bridge design engineer
chief highway design engineer
chief traffic engineer
city manager
civil engineer
electrical engineer
sociologist
surveyor
urbanologist

GRADE 7

CAREER CLUSTER MODULE

IV

CONSTRUCTION AND ENVIRONMENT

Unit/Topic 3 - Megalopolis

Career Development Curriculum Guide: Grade 7
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Megalopolis

LANGUAGE ARTS

Purposes:

To understand that city complexes are necessary in a nation which is industrialized and commercialized.

To see some of the values associated with city life.

To examine and clarify some of the myths created about idyllic country life.

To realize that people who live in cities have the power to change and improve their environment.

To learn about jobs related to city life.

To develop increased literacy skills through handling the materials in this unit.

Objectives:

Upon completion of work in the unit the student should be able to:

1. Explain orally or in writing why large city complexes are necessary in a nation that is highly industrialized and commercialized.

2. Compare both verbally and pictorially the values of city life and country life.

3. List 10-12 practical things that urban dwellers can do to help shape their environment instead of being crushed by it.

4. Discuss with accuracy the job categories related to the megalopolis.

5. Demonstrate increased efficiency in language arts skills.

Activities:

To accomplish the objectives, the student may engage in activities such as:

1. View films (see Activity 7) and write essays for a class booklet, "We Understand Our U.S.A." (A teacher hand-out might list appropriate essay topics for the booklet, such as "Why Commerce and Cities Go Together", "Pioneer Trading Posts", "Forerunners of Our Cities", "Technology and the Megalopolis", "My Favorite City", "Better Jobs in the City", etc.

Activities -- Continued

2. Have students use dictionary to find words beginning with "mega", and determine the meaning of it. Make comparison with metropolis, metropolitan.

3. Quests: Present reports to the class on famous cities of the past and present. These may follow library research and be accompanied by slides or travel posters when appropriate. Encourage investigation of foreign cities and ask for presentations made from notes rather than pre-written or pre-recorded speeches. Tie-in with Social Studies.

4. Participate in debate on the question, "Resolved: country life has more advantages than city life".

5. Quest: Prepare an out-of-class assignment (field and/or telephone research report) for which students find out specific ways in which citizens (urban people especially) can effect change in their surroundings. Tie-in with Social Studies.

6. Work with the teacher in a short series of lessons on the categories of jobs that emerge when large concentrated groups of people are together. Sales and service occupations should be included.

7. Take teacher-made tests of total language proficiency on materials in this unit.

8. See films listed here to gather insights and information on the big city complex and its problems.

   a. "Megalopolis--Cradle of the Future" (22) University of Iowa. Presents life and problems of megalopolis, the urbanized northeastern seaboard extending from Boston to Washington, D.C.
   b. "The Living City" (29) Encyclopedia Britannica Films. City dwellers do not need to be victimized by their environment: many avenues for change are available.
   c. "The Persistent Seed" (14) David Strom Associates, Information Motion Pictures. Cities show a life-force of their own; man needs to cooperate, plan, in order to shape and direct this growth.

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Megalopolis, LANGUAGE ARTS

Materials:

1. Teacher handout listing appropriate topics for a class booklet, "We Understand Our U.S.A."
2. Large double scrapbook to paste in individual student essays for Activity #1.
3. Teacher handout on job categories related to the megalopolis specifically and to the urban complex generally.
4. Teacher-made tests of total language proficiency: speaking test criteria might be set up for the field research reports and debates: listening/viewing tests might follow the lessons using film.
5. Films listed in Activity #7.

Notes:

Tie-Ins with Career-Related Skills

Improved self-assurance, better developed verbal competence, increased concentration span, improved understanding of role of work force in the American economy, and more positive attitudes toward value of work.

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Megalopolis

MATHEMATICS

Purpose: To show the students some of the social needs of mathematics.

Objectives: Upon completion of work in this unit, the student should be able to:

1. Convert decimal and common fractions with denominators of 10 or 100 to percent and conversely.

2. Convert a common fraction to a percent and conversely.

3. Name the decimal and percent equivalent of frequently used common fractions and conversely.

4. Find the missing element in a percentage problem using either the factor-product or the proportion method.

5. Solve problems involving percent such as tax.

Activities: To accomplish the objectives, the student may engage in activities such as:

1. Research and define megalopolis. (Megalopolis refers to the continuous stretch of metropolitan areas such that no rural areas exist between them. It is claimed that a megalopolis nearly exists between Washington, D.C., and Boston. The cities, boroughs, villages, towns, or town ships in the metropolitan area outside of the central city are called suburbs.)

2. The English teacher is to help each student to write a letter to the major cities surrounding Washington, D.C., requesting information on the population, number of homes, apartment buildings, stores, and major business activities conducted in the city. The students are to determine whether this area is urban or rural. The students are also to determine what percent of the Washington, D.C. metropolitan area is contributed by the city concerned. The students are also to find out which cities are part of the D. C. metropolitan area and classify each as urban or rural. The students are to determine the number of people per square mile for each city.

Activities -- Continued

3. The teacher is to find out the average or median salary for a government agency such as the Government Printing Office and the number of employees for the Government Printing Office. The students are to calculate the approximate amount of money lost by the city of Washington, D.C. when an agency such as GPO moves to the suburbs. The students are to calculate the amount of additional money to be spent in transportation. The teacher is to design varying situations, such as 75% of the employees relocate, 10% drive automobiles, and 15% use the bus.

4. The teacher is to find out what percent of the D.C. work force is employed by the Federal Government and government-related businesses. The students are to calculate the loss to D.C. if all of the government moves out to the suburbs.

Materials:

Books

The World Book Encyclopedia. 1972. vol. 4, pp. 448-457.

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Megalopolis

SCIENCE

Purpose: To give pupils a greater understanding of how sound and its intensity affects their thought processes.

To help them discover how they may shield themselves from excessive random noise.

Objectives: Upon completion of work in this unit, the student should be able to:

1. Diagram and label the parts of the human ear and state their functions.

2. State that different persons have different abilities to perceive sounds and tolerate noise.

3. State that excessive noise for prolonged periods diminishes the ability to hear.

4. State that planners for the megalopolis and urban and suburban building must take noise pollution into account.

5. Define the terms acoustic, audible, audiometer, inaudible and db, as well as others underlined in these pages.

Activities: To accomplish the objectives, the student may engage in activities such as:

1. Start a tape playing some "rock" or "soul" as background music before the class comes into the room. As the class gets seated, surreptitiously increase the volume so that it makes talking a little difficult. Engage the class in a discussion of noise pollution. What does the term mean? What are examples of noise pollution? When was the last time noise pollution troubled you? If class members are having difficulty in following the discussion turn off the tape recorder. Note the comments of the pupils. Some will profess to work better with the music on. Suggest a scientific test to determine how well one can learn under various conditions of noise.

2. A test of learning under differing noise conditions. Using lists of vocabulary words from a high school

Activities -- Continued

biology text, select five lists of ten words each which the class is to learn to spell correctly in a specified timed study period. On day one present the first ten words to be learned in five minutes. Insist on the room being absolutely quiet. Set a timer for the specified time. Go over the pronunciation of each word briefly. At the end of the five minutes have pupils clear their desks, pass out quarter sheets of lined paper, dictate the spelling words while pupils try to spell them from memory. Have pupils score each others papers keeping the scientific purpose of the test in mind. Do not record their scores in your rollbook. Let each pupil keep his own score.

3. On day 2 continue the test. Give out a new list of ten words. Go over pronunciation. Tell pupils that during their five-minute study period this time some music will be played. Play the rock or soul tape at a loud volume while they study. At the end of the specified study period, turn off the tape and dictate the test. Have pupils exchange papers, score and record score in notebook next to yesterday's score.

4. Repeat these learning situation tests on day 3, 4, and 5 using tapes of different noise patterns; riveting, or a pneumatic drill digging up a street, traffic noise, soft music, noise of the lunchroom, or other sounds. At the end of the series of tests have pupils examine their scores. Have each student make a bar graph of their 5 scores. Under what conditions did he better his own score on spelling? Under what conditions were his worst scores made? Which score was the control? Is this a true scientific test? Tie-in with Mathematics.

5. Quest: A team of pupils proficient in math get records of all five scores from each pupil (no names are necessary). Average the scores under each condition of testing and make a bar graph of the results to show the class (on a poster board or transparency). How does the class average compare with your individual results: Under what conditions do most students learn best? The tests listed above should be given at the start of each

Activities -- Continued

period. The rest of the period each day should be about sound and noise. Tie-in with Mathematics.

6. Discuss with pupils the art of listening carefully and distinguishing between sounds. Blindfold a pupil and seat him in the middle of the room. Unknown to him, give each of four other pupils seated at the four corners of the room four different noise makers. Everyone keep absolutely quiet. Have the blindfolded subject distinguish the direction of the noise and what it sounds like. Suggested sounds: a metal cricket, a knock on wood, a snap of the fingers, and a tuning fork. Let a different pupil be the subject each day. Use different noise makers in different corners of the room.

7. Discuss with pupils the construction of the human ear. Show the film #625 "Ears and Hearing". Use the large model of the ear. Have pupils make diagrams of the parts of the ear and the function of each.

8. Resource person: Have an audiologist talk to pupils about hearing and its preservation, care of the ears, and what can be done for the hard-of-hearing.

9. Discuss with the class how architects and city planners are trying to guard against and minimize noise pollution. Tie-in with Social Studies.

10. Quest: Have a pupil contact Metro and report on how the subway will minimize noise in the stations and in the cars. See References. Tie-in with Social Studies.

11. Quest: Report on "Noise Impact: research as reported in D. C. Interstate System 1971." See References. Tie-in with Social Studies.

12. Discuss with pupils how the loudness of a sound might be measured. This loudness is a little different than the intensity of sound which is measured in decibels. Following are some intensities of

Activities -- Continued

various sounds:

Type of Sound	Decibels
Threshold of hearing	0
Whisper	10-20
Quiet office	20-40
Automobile	40-50
Conversation	60
Heavy street traffic	70-80
Trains, riveters	90-100
Thunder (close)	110
Threshold of pain	120

Taken from Modern Physics (see References)

Materials:

1. Books
   a. Adler, Irving and Ruth. Your Ears. N.Y. The John Day Co. 1963.
   b. D.C. Dept. of Highways and Traffic. District of Columbia Interstate System 1971. Deleuw, Cather Associates. Harry Weesele Associates, Ltd. Chapter 4, p. 10-11 is good on "Noise Impact."
   c. Dull, C. E., Metcalfe, H.C. and Williams, J. E. Modern Physics. N.Y. Holt, Rinehart, and Winston, Inc. 1963. See pp. 276-277, "The Measurement of Intensity Level".
   d. Elgin, Kathleen. Read About the Ear. N.Y. Franklin Watts, Inc. 1967.
   e. Freeman, Ira M. All About Sound and Ultrasonics. N.Y. Random House. 1961.
   f. Highway Research Board. National Cooperative Highway Research Program 117, Highway Noise, A design Guide for Highway Engineers.
   g. Irving, Robert. Sound and Ultrasonics. N. Y. Alfred Knopf, 1959.
   h. Riedman, Sarah R. Water or People. N. Y. Abelard Schuman. 1960.
2. Sources of Information on Metro Subway
   Washington Metropolitan Area Transit Authority
   L'Enfant Plaza
   Community Services Branch

Materials -- Continued

3. Films
   Films from Twining Media Center (D.C.)
   a. #625 "Ears and Hearing, The." B, 10 min. S.
   b. #2363 "Boomsville". C, 11 min.
   c. #2189 "Recording Engineer, The." C, 11 min., S-A.
   Film from D. C. Public Library
   d. "Megalopolis -- Cradle of the Future". FBF 1962, 20 min., C. h-a.
4. Tape recorder, tapes (see activities)
5. Model of the human ear

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Construction and Environment
Megalopolis

SOCIAL STUDIES

Purpose: To show the students how cities of the future will form a continuing, interlocking pattern of operation and development to facilitate a better and more convenient life style for all.

Objectives: Upon completion of work in this unit, the student should be able to:

1. Trace the origin and development of cities from small self-contained towns to the sprawling urban centers that exist today.

2. State the factors that are bringing about these changes.

3. Explain the advantages and obstacles to inter-regional planning.

4. Compare and contrast the city of the past with the projected megalopolis of the future.

5. State how and why the eastern seaboard megalopolis originated and developed.

6. Explain the role that rapid transportation plays in new interrelated communities.

Activities: To accomplish the objectives, the student may engage in activities such as:

1. Research and report on how and why towns grow into large cities. State the effects of the following influences on such growth:

   a. geography
   b. industry
   c. climate
   d. transportation
   e. communication

2. Write a description of life in a medieval or frontier town and include incidents that influenced its growth and development.

3. Quest: Draw or construct a city of the past.

Activities -- Continued

Include the wall and explain why this was necessary.

4. Define and discuss the word "Megalopolis".

5. List and discuss common characteristics and problems of metropolitan areas. Include high density population, need for mobility.

6. List and discuss the ways in which adjoining metropolitan areas are independent and interdependent.

7. Draw a map of Washington, D. C. and the adjoining metropolitan areas. Note the proximity of the areas involved. How best could common problems be resolved? What agencies of cooperation are currently in existence? (Metropolitan Council of Governments). What others are needed? List and discuss obstacles to such cooperation. Tie-in with Art.

8. Study a map of the eastern seaboard and list the major cities; populations; chart the distance from city to city and the amount of time spent in travel by various means of transportation (bus, auto,plane, and train). Make a chart and discuss the conclusions drawn from the findings.

9. Form a committee to research and report on the major job opportunities in any two major cities. Compare and contrast the availabilities of opportunities in them. Are the similarities greater than the contrasts?

10. Research and discuss the influences of the following in tying the eastern seaboard together:

    a. Airline shuttles. Call airlines for schedules, fares, distances from airport to central city and cost.
    b. Interstate 95. cities now connected, projections, speed limit, obstacles to construction, purpose when completed, cost and how financed; maintenance.

Activities -- Continued

c. New Jersey Turnpike. urban centers now connected, original purpose, effectiveness, speed limit, cost and how financed; maintenance.

11. Research and report on urban centers that have developed between Washington, D. C. and Baltimore within the past twenty-five years; major employment opportunities and type and cost of commuter service between these centers. Tie-in with Mathematics.

12. Claiborne Pell in Megalopolis Unbound states: "Railroad passenger service in megalopolis today is seedy and inadequate, always dirty and often late..." Read about his horrifying experience on March 10, 1965, pp. 10-11, Megalopolis, then answer the following questions:
    a. Is his statement justified?
    b. What are the advantages of modern efficient rail service over other types of transportation?
    c. What improvements have been made since 1965?
    d. Why has rail service deteriorated?
    e. How does our rail service compare with the New Tokaido Line in Japan?

13. Discuss the statement "Man's technological ideas run far ahead of his willingness to sacrifice in order to implement them." How does this statement apply to our transportation situation today? Discuss High Speed Ground Transportation Act of 1965.

14. Major project and group quest: Ask the shop teacher to aid in making a plywood map of the Eastern Seaboard Megalopolis. Request the aid of the art teacher in filling in the states and cities. Seek the aid of the mathematics teacher in making the legend, mileage scale and consult science teacher to suggest means of illuminating through small battery operated lights the major urban areas in the eastern seaboard megalopolis.

Activities -- Continued

15. Discuss how we can better develop inter-governmental cooperation.

16. Individual quest: Find out and report on role played by Benjamin Banneker in the planning of Washington, D. C.

Materials:

1. Map of the Eastern United States
2. Map of the United States
3. plywood, batteries, paint, electric wiring
4. References
   a. Bailey, Stephen K. et al. Contemporary Issues in American Democracy, "Problems of Urbanization," New York: McGraw-Hill, Incorporated, 1969. pp. 423-440.
   b. Bollens, John C. and Schmandt, Henry J. Metropolis, Its People, Politics and Economic Life, New York: Harper and Row, 1965.
   c. "Breakthrough in Mass Transit," U. S. News and World Report, (May 15, 1967).
   d. "Cities and Suburbs, More and More the Same Problems," Time. (December 27,1968).
   e. "City in America, The," American Review, Vol. II, (May, 1962) pp. 142-160.
   f. Connery, Robert J. and Leach, Richard H. The Federal Government and Metropolitan Areas, Cambridge, Massachusetts: Harvard University Press, 1960.
   g. Gottman, Jean. Megalopolis: The Urbanized Northeastern Seaboard of the United States, New York: Twentieth Century Fund, 1961.
   h. McGraw, Frank M. City in America, The, Ocean, New Jersey: 1971. p. 63.
   i. Mumford, Lewis. The City in History, New York: Harcourt Brace and World, 1961.
   j. Pell, Claiborne. Megalopolis Unbound, New York: Frederick A. Praeger and Company, 1966.
   k. Reische, Diana. Problems of Mass Transportation, "A Look Ahead," Section VI, New York: The H. W. Wilson Company, 1970.
   l. Schnore, Leo F. The Urban Scene, Chapter 18: "The Journey to Work in 1975," New York: The Free Press (60 Fifth Avenue, 10011), 1965.

Materials: Continued

m. "To Heal a Nation," Time, (January 24, 1969).

5. Films

a. "Cities of the Future," (traces development of cities from the earliest times), McGraw-Hill Films, Color (25 mins.)

b. "Cities in Quest of Tomorrow," (1970), 16 mm. Sound, (28 mins.)
Examines the Model Cities program and its initial effect on the city of Trenton, New Jersey. It shows the need for meaningful participation by residents of the Model Cities target areas and the community at large. Available from the U. S. Department of Housing and Urban Development, Send to: Modern Talking Picture Service, 2000 L Street, N. W., Washington, D. C. 20036.

c. "City Is People, A", (1970) 16 mm. Sound (22 min.) Highlights the potential for future improvement in the living and working environment of Washington, D. C. against a background review of current problems and development activities. Write to Downtown Progress, 521 Twelfth Street, Northwest, Washington, D. C. 20004.

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INDUSTRIAL ARTS

Purpose: To make students aware of what living and travel will be like in the near future and to relate job technology necessary to function in the new environment.

Objectives: Upon completion of the work in this unit, the students should be able to:

1. Explain how suburbia actually becomes a part of the cities that it now surrounds.
2. Construct a small scale layout of the metropolitan area showing how the various governments might function in the near future.
3. Prepare a job analysis on the career opportunities available.
4. Explain how new technology will or will not change the environment.

Activities: To accomplish these objectives, the students may:

1. Field Trip: Visit and/or write the U. S. Department of Transportation for brochures on the projected use of Metro, Metroliner, Amtrak, Monorail, and helicopter transportation.
2. Have students draw maps of the metropolitan area showing how construction and transportation will bring the groups together. Quest: Tie-in with Social Studies.
3. Quest: Construct a small scale metropolitan layout showing how the D.C. area can become a megalopolis. Tie-in with Mathematics, Art.
4. Write a paper on the activities now taking place among the various local governments on plans for the future. Tie-in with Social Studies.
5. Quest: Construct small scale models of the roads of tomorrow. Depict how autos will be placed on high speed, specially designed roads

Activities -- Continued

and programmed by computer from one city to another. (automated highways).

6. Prepare job analysis for Metro employees.

7. Quest: Prepare a layout and paper on "How Natural Resources May Be Maintained," when areas merge. Tie-in with Art, Social Studies.

8. Field Trip: Visit the Union Station and report on the Metroliner.

Materials:

1. road kits,
2. small autos
3. models of Metro and Amtrak Trains
4. modeling clay

GRADE 7

CAREER CLUSTER MODULE

IV

CONSTRUCTION AND ENVIRONMENT

Unit/Topic 4 - Demography

Topic: Demography

Purpose: To have the student understand how the population of countries, states, and communities is controlled.

Main Ideas: Students pay little or no attention to the growth or decline of the population within their community, the state, or other countries. For them, people just live and die. Students must be made aware of the factors that contribute to the growth and decline of the population.

The student must understand how death, birth control, migration, emigration, employment and technology, zoning, deterioration of neighborhoods, and national disaster affect demography.

Individual and Small Group Quests:

1. Have the student research into how overpopulated countries control population.

2. Trace the migration of people after their community has been condemned. (i.e. D.C.)

Career Opportunities:

1. _____

2. Semiskilled

census taker
immigration clerk
interviewer
life insurance agent
research assistant
statistical clerk

3. Skilled

customs inspector
employment counselor
immigration officer
family-planning consultant

4. Professional

actuary
anthropologist
biologist
demographer
clergy

Career Opportunities -- Continued

3. industrial meteorologist
medical records librarian
research worker
translator

4. geneticist
geographer
historian
mortician
physician
physiologist
public health nurse
social worker
social scientist
sociologist
statistician
urbanologist

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Construciton and Environment
Demography

LANGUAGE ARTS

Purposes:

To reinforce the idea that patterns in population shifts, births, deaths, etc. have identifiable causes, and that man can control these causes.

To see how citizen groups can cooperate with municipal groups (agencies) to make life comfortable in large city complexes.

To become aware of how people can become dehumanized by accepting the fact that they are just another statistic.

To review major concepts and demonstrate key skills in this cluster.

To sharpen general literary skills.

Objectives:

Upon completion of work in this unit, the student should be able to:

1. Demonstrate understanding of causes and effects of population pile-ups.
2. Show a practical knowledge of how citizen groups and city agencies can cooperate to make city life pleasant and humanly rewarding.
3. Explain what people should do to avoid becoming insensitive to one another's needs.
4. Write out five key concepts related to construction and environment.
5. Demonstrate improved literary skills on tests of total language competence.
6. Discuss kinds of jobs related to the material in this cluster.
7. State the values of field trips and common activities that occur in connection with this cluster.

Activities:

To accomplish the objectives, the student may engage in activities such as:

1. Participate in a culmination program on construction and environment. (A teacher-made list of possible contributions may help organize this audience situation.).

2. Work in small groups prior to the auditorium program to practice speeches, skits, debates, reviews, research reports, and other presentations.

3. See films listed here to achieve objectives of this unit on demography and to tie-up cluster on construction and environment.

   a. "The Baltimore Plan" (22) Encyclopedia Britannica Film. Citizens do not accept a dehumanized role as just another statistic: they organize to cooperate with city agencies to improve their life.
   b. "Living in a Metropolis" (22) University of Iowa. New York City is used to show the realities of large concentrations of people.
   c. "The Detached Americans" (32) Carousel Films. City dwellers can lose their human sensitivity unless effort is made to respond to the needs of others.

4. Participate in informal class discussions on films listed above: use teacher-prepared guide to achieve stated purposes for this unit.

5. Take tests in reading, writing, speaking, listening to discover extent of personal improvement in language competence. (Writing test might include job lists and descriptions for this unit.)

Materials:

1. Teacher handout organizing the auditorium program.
2. Miscellaneous art supplies for children preparing charts and maps for the auditorium program.

Materials -- Continued

3. Blank cassettes, recorders, projectors, 35mm film for students selecting this medium of presentation for the auditorium program.
4. Three films listed in Activity 3.
5. Teacher devised tests of students language progress.
6. Record, "Dialects, U.S.A." (National Council of Teachers of English) to test listening skills.

Notes:

Tie-Ins with Other Subject Areas

Art--help with students pictorial presentations
Industrial Arts -- help plan lighting and stage

Tie-Ins with Career Related Skills

Improved verbal skills, knowledge of jobs related to construction and environment, self-confidence through audience presentations, and new understanding of the value of work.

Technical Terms

alienation
colloquialism
demography
demographic
dialect
dialect belt
modernization
population shift
regional dialect
vital statistics

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MATHEMATICS

Purpose: To assist the students in understanding the concept of demography as it is related to mathematics.

Objectives: Upon completion of work in this unit, the student should be able to:

1. Find the missing element in a percentage problem using either the factor-product or the proportion method.

2. Change a fraction numeral to an equivalent form, using the property of one.

3. Convert common fractions to decimal form and conversely.

Activities: To accomplish the objectives, the student may engage in activities such as:

1. Calculate the population density for North America, South America, Africa, Europe, Asia and the World after the teacher has provided the students with the population and square mileage. The students are also to express the population in scientific notation. The students should compare their results against official data from the Census Bureau.

2. Express the birth and death rate of the U.S. in terms of a percent. The students are to calculate the estimated population of the U.S. in 1973 and 1975 based on the birth and death rate and the percentage because of natural increase and the percentage because of migration. The students are to estimate the number of white people, black people, and others. The students are to calculate the number of people in the U.S. in 1972 who were born in another country.

3. Calculate the percent of the World's population represented by the U.S., Africa, Asia, Europe, and South America.

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Demography, MATHEMATICS

Materials:

1. World Population: 3,754,000,000
   Africa: 370,000,000
   Asia: 2,173,000,000
   Australia: 13,000,000
   North America: 329,000,000
   South America: 201,000,000
   U.S.: 209,166,000
2. Population Density: Average number of people living on each square mile of land.
3. Birth Rate: Measures the number of births in a given year for every 1,000 persons.
4. Death Rate: Measures the number of deaths in a given year for every 1,000 persons.
5. Crude Rate: Number of events in a given year divided by the toal population.
6. Crude Birth Rate in the U.S: 18 births for every 1,000 persons.
7. Crude Death Rate in the U.S.: 9 to 10 deaths for every 1,000 persons.
8. Increase in population equals birth rate times population.
9. 81% of the increase in the U.S. population comes from natural increase and 19% from immigration.
10. 88 of every 100 people in the U.S. are white.
    11 of every 100 people in the U.S. are black.
    1 of every 100 people in the U.S. are other nationalities.
    7% of the people in the U.S. were born in other countries.
11. The World Book Encyclopedia, Vol. 15, 1972. "Population". pp. 597-599.
12. The World Book Encyclopedia, Vol. 2, 1972. "Birth Rate". p. 298.

Notes:

Tie-Ins with Other Subject Areas

Social Studies -- More information world populations.

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Demography

SCIENCE

Purpose: To help pupils learn the natural laws governing populations in the plant and animal world before the intervention of humans.

To help them understand that these laws apply to humans too and are irrevocable.

Objectives: Upon completion of work in this unit, the student should be able to:

1. Define a population and describe some of its limiting factors.

2. Take a representative sample of a population and estimate the total number present.

3. Define population density and give examples.

4. Describe ways in which the human population may be controlled.

Activities: To accomplish the objectives, the student may engage in activities such as:

Note: Start a hay infusion culture of protozoans (dried grass plus unchlorinated water) ten days to two weeks before beginning this unit so that it is well established by day one of this work.

1. When pupils enter the room let them take turns looking through one of four microscopes set up and focused on swimming protozoans. Instruct pupils to notice the organisms' shape. Get them to hypothesize where they came from and how many they see.

2. Discuss pupils' observations and hypotheses. Show them the hay infusion culture bottle and define the organisms as a population of protozoans. Pose the question: How could you count how many there are in the whole bottle? Explain that this is one type of problem encountered with populations: How to count every member. Tie-in with Social Studies.

3. Have pupils suggest some easier populations to count: students in a classroom; dogs that live on the block; squirrels in a city block park.

Activities -- Continued

Have pupils suggest ways to count the population of students in the school. Develop the idea of sampling as a means of estimating the entire population in a given area. Have teams of pupils estimate the population of the lunch room 15 minutes after their lunch period has begun by the method of sampling.

4. Have pupils stake out an area on the school lawn and estimate the population of dandelions (or other distinctive weed) in that area by sampling. Use a wire coathanger bent into a square and toss it at random as a sampling device. Count the number of tosses, each one approximating a square foot of area, and number of dandelions found within the wire on each toss. Find the average number of dandelions per toss. Multiply by total number of square feet in the staked-out area. This is the approximate population of dandelions for the entire area. The number of dandelions per square foot is the Population Density of the area at that time. There may be more next spring. Why? See Reference 1. Tie-in with Mathematics.

5. Quest: Find the population and population density of persons living in yours or a neighboring apartment building or find the population and density of dogs living in your neighborhood.

6. Discuss with the class the factors that make a population increase. List their ideas. Show the logarithmic aspect of population increase by having pupils find out how many bacteria will result from one bacterium fissioning every twenty minutes for 24 hours, or one protozoan fissioning every three hours for a month. See Reference 2. (The correct answer is in the billions.) Point out that human populations follow this same rule but at a slower rate. Tie-in with Mathematics.

7. Discuss with the class the factors that make population level off, stop growing, or decrease. Set up the demonstration microscopes again and examine the protozoan hay infusion culture. Are the numbers of organisms fewer or more abundant?

Activities -- Continued

What will happen to them eventually living in that jar? List the pupils' ideas.

8. Show the film #1435 "Population Ecology" (Twining). Discuss this carefully and at length with the class. Show it again to summarize the important points.

9. Quest: Report on the animals that are on the endangered species list: National Wildlife Federation, 1412 16th Street, Washington, D.C.

10. Ask pupils to apply factors that control and limit animal populations to the human population problem. Discuss with them the steps that nations should take to limit further growth. Discuss with pupils the consequences that nature will impose upon humans if we do not take steps to limit population growth: pollution of environment, war, depletion of soils, famine, lack of water, etc. Discuss with pupils the fallacy that producing extra food crops is the answer to our population problems.

11. Quest: Go to the lobby of the U.S. Department of Commerce on 14th Street between E and Constitution Ave. NW and report on the automated Population Census Counter there.

Materials:

1. Books
   a. Biological Sciences Curriculum Study. Biological Science: Patterns and Processes. N.Y. Holt Rinehart, and Winston, Inc. 1966. Lab Activity S-11, pp. 18-19. Sampling a population.
   b. Busch, Phyllis S. At Home In Its Habitat. Cleveland. The World Publishing Co. 1970.
   c. Hirsch, S. Carl. Guardians of Tomorrow. (Pioneers in Ecology), New York. The Viking Press, 1971.
   d. Hyde, Margaret O. This Crowded Planet. N.Y. Whittlesey House, McGraw-Hill Book Co. 1961.
   e. Lowenherz, Robert J. Population. Mankato, Minn. Creative Education Press. 1970

Materials --Continued

f. Otto, James H. and Towle, Albert. Modern Biology. N.Y. Holt Rinehart and Winston, Inc. 1965. Rate of fissioning: p. 229.

2. Films:
Films from Twining Media Center, Washington, D.C.
a. #1435 "Population Ecology" B 19 min. S
b. #1436 "Population Pattern in the United States" B 11 min. S
c. #2363 "Boomsville" C 11 min.
d. #2216 "What are We Doing to Our World" C 52 min. S-S
Films from D.C. Public Library
a. "Margaret Sanger" Contemporary 1966 15 min.
b. "USA: Seeds of Change" Ne. 1965. 30 min. h-s. Focuses on social factors caused by overpopulation and need for controls.
3. Hay infusion culture. Start this two weeks ahead of time.
4. 18 wire coathangers
5. 25 foot red measuring tape.

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Demography

SOCIAL STUDIES

Purpose: To show the students the influence of population growth on their future way of life.

Objectives: Upon completion of work in this unit, the student should be able to:

1. Illustrate how the world population is distributed.
2. Graphically show how the population of the United States is distributed.
3. Investigate the factors that influence population growth and decline.
4. Examine the reasons for large-scale migrations within the United States.
5. State what is being done to control population growth.

Activities: To accomplish the objectives, the student may engage in activities such as:

1. Check the statistics of the first U.S. Population Census in 1790 and those of the most recent census; conduct an informal discussion on what happened.
2. Fill in an outline map showing distribution of the U.S. population in 1800 and today.
3. Quest: Research and report on how the age composition of the United States population is changing.
4. Almost two-thirds of the people of the world live in 10% of the world's area. Form a committee to gather data and make a report which includes an explanation of why this is true. Ask the mathematics teacher to help convert the findings into statistical data.
5. Research and prepare a chart showing the characteristics of a highly developed nation as compared with those of an under-developed nation and discuss the difference with the class.

Activities -- Continued

6. Research the birth and death rate for Washington, D.C. for the past year. Discuss these statistics with the class. Tie-in with Mathematics.

7. Research and give reasons for the high percentage of blacks in metropolitan areas today. Why has there been such a shift from the rural to urban areas?

8. Resource Person: Invite a representative from the Urban League to discuss black migrations since 1900.

9. Give reasons for the California population boom within the past decade. Make a chart displaying your findings.

10. Resource Person: Invite a member of the local Zoning Board to explain how it attempts to control population density and land use in the District of Columbia.

11. Discuss the following questions:

    a. Should population density be controlled by restricting migrations within the United States? to the United States?
    b. Why does the eastern seaboard have such a heavy concentration of population?
    c. Should there be a restriction on the number of children a poor family should have?

12. Show the concentration of population on a map of the District of Columbia; also prepare a graph showing the number of people per square mile in the District of Columbia. Tie-in with Mathematics.

13. Research how the population explosion has affected a selected country (ex. India, Pakistan, China, or a Latin American country):

    a. What conditions, economic, social or political, if any, tend to reflect the problem?
    b. What is being done to correct it?

Activities -- Continued

14. Show how the United Nations attempts to deal with world hunger and overpopulation.

15. Individual quests: Research the population growth rate in each state and report to the class; then prepare a chart indicating their findings.

16. Study and explain the shifting urban-suburban population centers in the Washington area.

17. Contrast black and white infant mortality rates since 1900. What accounts for the significant drop in black infant deaths? Tie-in with Mathematics.

18. List some of the adverse effects of over population.

19. Make a list of occupations and industries which might be affected by a decrease in proportion of young people and explain why this would be so.

20. List the factors conducive to decrease in the death rate.

21. Research and explain the operation of the quota system employed by the United States for a long period of time. Tie-in with Mathematics.

22. Gather information and make a chart showing the increase in welfare recipients in D.C. since World War II and discuss the reason for your findings with the class. Tie-in with Mathematics.

23. Prepare menus for low-cost meals which satisfy minimum nutritional requirements. Try to find out the relationship between the mortality rate and nutrition. Tie-in with Home Economics, Mathematics.

Materials:

1. Flat maps: U.S. and World
2. Globe, charts, graph paper, art paper, outline maps of the world and the United States.

Materials -- Continued

3. References:
   a. Bailey, Stephen et al. Contemporary Issues in American Democracy. New York: Webster Division, McGraw-Hill Book Company, 1969.
   b. Bollens, John S. and Schmandt, Henry J. The Metropolis, Its People and Economic Life, New York: Harper and Row. Library of Congress #65-19489.
   c. Census Reports Since 1960 (Population), Bureau of the Census, Suitland, Maryland.
   d. Census of Governments, U.S. Bureau of the Census, Vol. I, p. 22, 1962.
      "Cycle of Despair: The Negro and the City," Life Magazine (March 8, 1968).
   e. Demographic Yearbook. Statistical Commission and Population Commission of the United Nations, Department of Public Information, United Nations, New York, New York.
   f. Gelormino, A. Gerald and Gotti, Margaret R. The Challenge of Our Heritage, Chapter XVI, "Cooperation Between Federal Government and Large Urban Areas," also: "Variations within American Cultural Patterns," Dobbs Ferry: Oceana Publications, Incorporated, 1970.
   g. Ng, Larry and Mudd, Stuart. The Populations Crisis, Bloomington, Indiana: Indiana University Press, 1966.
   h. Schnore, Leo F. The Urban Scene (Human Ecology and Demography), New York: The Free Press, 60 Fifth Avenue
   i. World Almanac
   j. Wrigley, E.A. Population and History, New York: World University Library, 1969.
4. Film:
   a. "The Uprooted Nation" (an example of migration patterns in the U.S.) Color (22 min.) Churchill Films.

Note:

Over the years, the most widely used definitions of metropolitan areas have been those employed by the Bureau of the Census. The current definition called the Standard Metropolitan Statistical Area (S.M.S.A.) was established by the Bureau of the Budget with the advice of a committee of representatives from a number of national governmental statistical agencies. According to this definition, each standard metropolitan statistical area must contain at least one city of not less than 50,000 population (or two contiguous cities constituting for general economic and

Materials -- Continued

social purposes, a single community with a combined minimum population of 50,000.) In general, then the S.M.S.A. will include the entire county in which this central city is located, as well as adjacent counties that meet two criteria: (1) they are metropolitan in character and, (2) they are economically and socially integrated with the central county. This excerpt is taken from "The Metropolis" by Bollens and Schmandt; see pages 7 and 8 of the same text for additional criteria.

BUSINESS EDUCATION

Purpose: To give students an opportunity to become aware of how various members of our population protect themselves and their families and thereby help to control the status quo within their community by way of life insurance and wills.

Objectives: Upon completion of work in this unit, the student should be able to:

1. Define orally or in writing technical terms pertaining to life insurance and/or wills.

2. Find answers to specific questions by examining a sample life insurance policy and/or will.

3. React in a personal way to the advantages and disadvantages of having a large number of older citizens making up the population of their community.

Activities: To accomplish the objectives, the student may engage in activities such as:

1. Resource Person: Listen to a representative from one of the insurance companies address the class on mortality rates.

2. Discuss in groups how such things as death, birth control, migration, emigration, employment deterioration of neighborhoods, and national disaster affect demography. The group chairman could report to the class orally on the findings.

3. Teacher-directed class discussion on the following topics:
   a. What is life insurance?
   b. Why buy life insurance?
   c. The different types of life insurance contracts, e.g., straight life, term, double indemnity, endowment, annuity.

4. Analyze different case problems so as to select the most appropriate type of insurance policy for individual cases.

Activities -- Continued

5. Make a bulletin board display of terms related to life insurance: agent, beneficiary, face value, premium, policy.

6. Hold a panel discussion on Wills and Intestacy and Codicils.

7. Write own personal will, following a proper format of a will taken from various typing texts.

8. Hold informal group sessions to discuss personal reactions to different age levels of population, particularly their reactions to elderly citizens. Later have individual students write their own personal reactions to this topic indicating whether they agreed or disagreed with group opinion. Tie-in with Language Arts.

Materials:

1. Books:
   a. Wilhelms, Fred T., Helmerl Ramon P., and Herbert N. Jelley. Consumer Economics. 3rd ed. Gregg Division, McGraw Hill Book Co., 1966. (Part 16, "Life Insurance")
   b. Fish, McKee and James Snapp. Applied Business Law. 9th ed. South-Westein Publishing Co. (Unit 9, "Life Insurance" and Unit 11, "Wills and Intestacy")
2. Pamphlets:
   a. How to Plan a Life Insurance Program. Charles Rogers and Marguerite Burk. 1956. 36 pages Council on Consumer Information, Colorado State College, Greeley, Colorado.
   b. Sharing the Risk in an Approach to Family Economic Security. 1958; Institute of Life Insurance, 488 Madison Ave. New York, New York. (31 page booklet, teachers' guide includes special emphasis on life insurance). Also available, What Life Insurance Means.
3. Films:
   a. "Measure of a Man" (27 min.) dramatizes the importance of planning for the future through life insurance.

Notes:

Tie-Ins with Other Subject Areas

Math -- various activities involving the costs and benefits of different insurance policies.

Tie-In with Specific Career Related Skills

Skill in interpreting the various costs and benefits of different types of life insurance policies are important in occupations such as: life insurance or other insurance salesmen, secretaries, clerk-typists, laborers, construction workers, and lawyers.

Career Development Curriculum Guide: Grade 7
Construction and Environment
Demography

INDUSTRIAL ARTS

Purpose: To have students understand how construction of the Metro, highways and zoning laws, and redevelopment of land will displace the small business man, homeowners and generally contribute to the deadline and growth of Washington, D.C.

Objectives: Upon completion of work in this unit, the student should be able to:

1. Explain how construction of Metro has caused a decline of small businesses in the downtown area.
2. Explain how projected plans by the Transportation Department have forced homeowners to sell out and relocate.
3. Explain how the small business man, the homeowner and tenant will return to Washington after Metro and the highways are completed.
4. Explain how the District Government Redevelopment Land Agency condemns property (neighborhoods), redevelops it, and allows people to return.
5. Identify related careers.

Activities: To accomplish the objectives, the student may engage in activities such as:

1. Field Trip: Visit the downtown area and see the empty buildings (some for rent); interview small businessmen who are going out of business because Metro construction has driven away customers or because Metro itself has bought and condemned the building. Tie-in with Social Studies.
2. Field Trip: Visit Brookland to see how homeowners were forced to sell blocks of homes due to a projected highway plan that fell through. (Interview homeowners who are still there about property values.) Tie-in with Social Studies.
3. Resource Person: Invite a city planner from Metro to explain how large and small business will be

Activities -- Continued

available at Metro stops (above and below ground). When construction is completed, there will be high-rise apartments, co-ops and entertainment houses.

4. Field Trip: Visit a redevelopment site. (Brentwood Apartments, Brentwood Road and Rhode Island Avenue, N.E.) Interview tenants, workers, and District Government officials. Tie-in with Social Studies.

5. Research and write job description for several careers related to the Metro System. Tie-in with Language Arts.

6. Quest: Have students visit the District of Columbia Office of Vital Statistics. Trace the migration of people after their community has been condemned.

Materials:

1. tape recorder
2. cassettes